

## REMARKS

This is Applicant's second response to the June 16, 2009 Final Office Action.

In the Office Action, claims 1-21 are noted as pending in the application, claims 1-21 stand rejected, no claims are objected to and no claims are allowed. No claims have been withdrawn from consideration. Claim 22 has been previously canceled.

## PRODUCT CLAIMS AND METHOD CLAIM

Applicant appreciates the indication that the product claims and the method claim are treated together. It is noted that the product claims and the method claim have different elements, and each claim stands independently of the others.

## REJECTIONS

### INDEFINITENESS

Claims 1-21 are rejected under 35 USC 112, second paragraph, as being allegedly indefinite. Claims 1 and 21 were previously amended and Applicant appreciates the indication in the August 31, 2009 Advisory Action that these amendments are entered.

### OBVIOUSNESS

Claims 1-20 are rejected under 35 USC 103(a) as being allegedly unpatentable over *Boyd* (6,688,081) in view of *Itzel* (7,793,475). These rejections are respectfully traversed for the reasons discussed above and for the following reasons.

Applicant appreciates the time and consideration given for the Telephone Interview with the Examiners. Applicant also appreciates the August 31, 2009 Advisory Action, and the indication that the amendments have overcome the Section 112 rejections. As noted during the Telephone Interview, Applicant's specification, at page 10, line 10, refers to "concertina" when it identifies concertina-like sidewalls (4a) that can provide the expansion of the seal (4) into the neck finish (2). Reference

is also made in the preceding paragraph to Figures 4a and 4b, which show not threads or a helix or spiral as suggested by Mr. Gartenberg during the Telephone Interview when referring to FIGS. 5a and 5b, but instead a structure having folds equi-distant from each other and a given fold on one side being the same distance from an end of the seal as a corresponding fold on the other side. These are accordion-fold structures.

Mr. Gartenberg also presented a dictionary definition of "concertina" as referring to concertina wire, which has a spiral or helical arrangement. Applicant's representative pointed out that such a definition was for concertina "wire" and wire was not under consideration in the present application, and that Applicant's representative believed that "concertina" in the context of "concertina wire" refers to the expansion from the stored configuration of the wire to the installed configuration of the wire. It is noted here that Itzel does not undergo easy longitudinal movement.

Furthermore, contrary to the Advisory Action, Applicant's undersigned representative did not argue "that a combination of Boyd and Itzel fails to teach a flexible material", but instead argued that none of the applied references taught the flexible seal characteristics as claimed, and that the threads of Itzel were not flexible.

To avoid any interpretation that the single word "concertina" covers barbed wire, Applicant amends the claims to recite "accordion" instead of "concertina" for one of the three options in the claimed group of flexible seal elements. The other two options in the claimed group of flexible seal elements remain. Support for such amendment is provided by FIGS. 4a and 4b. No change is made in the scope of the claims. Additionally, definitions of "concertina" are attached hereto as Appendices A and B in the context of folded materials. It is noted that none of these definitions refer to barbed wire structures. Additionally, the specification has been amended to describe the structure represented by FIGS. 4a and 4b. No new matter is added.

It is also noted that none of the applied references provide any downward movement of a seal arising from the form of the material. It is noted that the present claims, as amended, recite "wherein said seal, to enable its downward movement, is selected from the group of a flexible material housing with an expandable sidewall, a

flexible material housing with an expandable sidewall which has an accordion construction, and a flexible balloon structure which is able to expand within the neck finish." Nothing has been presented demonstrating that Itzel is flexible or has any downward movement, or that Boyd's closure moves "downwardly towards the base and within the neck finish to compensate for vacuum forces during cooling of the liquid following sealing of the container" or "wherein said seal, to enable its downward movement, is selected from the group of a flexible material housing with an expandable sidewall, a flexible material housing with an expandable sidewall which has an accordion construction, and a flexible balloon structure which is able to expand within the neck finish."

Nothing in Boyd or Itzel teaches or suggests a flexible material selected so as to enable downward movement of the seal. Boyd does not have an expandable sidewall. It is submitted that Boyd's construction uses a relatively rigid construction in the cap, in order to produce the headspace gas displacement described in Boyd as the closure 32 is advanced onto the neck of the container. It is also submitted that Boyd's stated purpose of displacing headspace gases with the closure would not be met by a structure having a flexible wall. Therefore, a position by the Patent Office that Boyd's closure 32 has flexible surfaces in the headspace renders Boyd ineffectual for its intended purpose. Changing a reference to be different from its teachings fails to establish obviousness.

Additionally, neither Boyd nor Itzel teach or suggest a flexible material housing with an expandable sidewall which has an accordion construction. The Office Action provides no information as to how Boyd and Itzel would be combined to produce a seal with a flexible material housing with an expandable sidewall. If anything, Itzel merely reaffirms that Boyd would have threads on the external surface of its closure.

Furthermore, neither Boyd nor Itzel teach or suggest any flexible balloon structure which is able to expand within the neck finish.

The Office Action relies on *Itzel* as allegedly disclosing a concertina construction within a sidewall, referring to FIGS. 2a, 4a and 5b. First, *Itzel* fails to teach or suggest an expandable side wall, a flexible material or a flexible balloon structure. Second, *Itzel* fails to teach a concertina construction or even a

construction analogous to concertina wire, or an accordion construction, but instead teaches rigid threads 17, 22 for securing a cap 15 on the container. At least concertina wire is expandable, whereas the threads in *Itzel* are not expandable. Nothing in the Office Action establishes that *Itzel*'s threads are a concertina construction or an accordion construction, or that such threads form any type of expandable side wall or flexible balloon structure. Applicant respectfully requests evidence of any definition or other established meaning stating that threads for a container cap are a concertina construction or that they form any type of expandable side wall or flexible balloon structure.

*Itzel* discloses a closure cap for a two-component packaging system. A cap (FIGS. 1-7), for example 15 in FIG. 3, is used to close a container. The closure cap is rotatable on the neck of the bottle, for example through engagement of the threads 17 or 22. See, for example, column 3, line 65, and column 6, lines 10-15. These structures are referred to in *Itzel* as threads and not as any structure or feature even approaching a concertina construction or accordion feature, let alone any type of expandable side wall or flexible balloon structure. Moreover, the Office Action not only omits any reference numerals, it also omits any identification of structure approaching a concertina or accordion construction. Therefore, *Itzel* is no better than *Boyd* in teaching or suggesting Applicant's claimed inventions.

It is noted that nothing in *Boyd* teaches or suggests any type of seal with an expandable side wall or flexible balloon structure. *Boyd* specifically states that the seal 56 is relatively stiff (column 7, lines 23-26), and the materials of each of the closures include metal or polymer. Additionally, in *Boyd*, the "seal" is a seal per se only when it actually creates a seal with the container, after which it is no longer movable as a seal. There is no movement of any of the alternative seals of *Boyd* following sealing of the container, and there is no expandable side wall or flexible balloon structure. This is clear, for example, at paragraph 7, lines 38 to 45, where it is stated that the method "...advances the scavenger closure headspace-displacing member 56 into the filled container 26 to cause gases in the headspace 30 (fig. 2) to vent through the clearance 50 and escape over the thread 14 before the scavenger closure 52 completely seals against the sealing surface 13 ... ." [Emphasis added.] Therefore, no seal is created in *Boyd* until the seal/closure is fully threaded onto the

container and the seal is formed between the seal/closure and the sealing surface of the filled container 26. Movement of the seal/closure occurs only before sealing, and up until that time, headspace gas escapes as the closure is threaded onto the container. Clearly, *Boyd* provides no teaching or suggestion for an expandable or movable seal, a seal where a wall includes an expandable side wall, an accordion wall, or other features described by Applicant. It is submitted that if a wall in *Boyd*'s headspace gas displacement structure was flexible, *Boyd* would no longer function as intended.

There is, therefore, no disclosure or suggestion in *Boyd* that any of its "seals" 44, 56, 62, has the ability or intention to move when the closure is sealed on the container, for example when a heated fluid is inside the container, or has any type of expandable side wall or flexible balloon structure.

It is respectfully requested that the next Office Action indicate what element of *Boyd* is an expandable side wall or flexible balloon structure.

The newly-referenced Chinese publication, CN 2341917Y, also fails to teach or suggest an expandable sidewall, a sidewall which has an accordion construction providing for expansion or a flexible balloon structure.

#### Applicant's Disclosure

Applicant's disclosure has been discussed previously and that discussion will not be repeated here.

#### Claims

Consider now the claims in the application.

Claim 1 is an independent apparatus claim and recites in part:

"a neck finish which includes an expandable and moveable seal, wherein the seal is configured to be expandable and moveable relative to the container when sealed thereto and when a heated liquid is in the container, said seal moving downwardly towards the base and within the neck finish to compensate for vacuum forces during cooling of the

liquid following sealing of the container, wherein said seal, to enable its downward movement, is selected from the group of a flexible material housing with an expandable side wall, a flexible material housing with an expandable side wall which has an accordion construction, and a flexible balloon structure which is able to expand within the neck finish."

None of the applied references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or wherein said seal, to enable its downward movement, is selected from the group of a flexible material housing with an expandable side wall, a flexible material housing with an expandable side wall which has an accordion construction, and a flexible balloon structure which is able to expand within the neck finish. *Boyd* neither has flexible material or expandable side walls or moves when the closure is sealed. There is no disclosure or suggestion in *Boyd* that any of its closures 44, 56, 62, has the ability or intention to move following sealing of the container. Additionally, *Itzel* fails to teach or suggest a seal which is in any way expandable, or which is movable downwardly towards the base and within the neck finish to compensate for vacuum forces during cooling of the liquid following sealing of the container. None of the applied references teach or suggest singly or in combination expandable side walls or a flexible balloon structure. Clearly claim 1 is patentable over the references.

Claims 2-20 are dependent directly or indirectly from independent claim 1 and are asserted as being patentable for the same reasons as discussed with respect to claim 1, for the combinations in the dependent claims as well as for the additional limitations recited in the dependent claims. Note for example claim 3 reciting in part "wherein said seal is of said flexible material having an expandable side wall". Note also claim 4 reciting in part "said side wall has said concertina construction providing for its expansion". Claim 6 recites in part "said seal includes said side wall which can be physically moved relative to the neck finish and towards the liquid in the container". Claim 7 recites "the side wall includes a screw thread engageable with another screw thread provided for said neck finish or a cap thereof". Note also claim 10 reciting in part "a commodity is positioned within said secondary headspace". Claim 11 recites in part "said commodity is one of a tablet and a pill intended for

mixing with the liquid before use". Note also claim 16 reciting in part "the seal is of said flexible balloon structure which is expands within the neck finish in compensating for vacuum pressure as the liquid cools". Claim 17 recites in part "wherein said base inverts to provide a compression of the seal to move it within the neck finish towards the said opening and to pressurize a secondary headspace above said seal". Clearly these dependent claims are patentable over the applied art.

Claim 21 is an independent method claim and recites in part:

"heating the fluid at least one of before and after its introduction into the container, providing an expandable and moveable seal for the open end to cover and contain the fluid, said seal responding to one of the expansion and contraction of the fluid so as to compensate for pressure in a headspace of the container under the seal following sealing of the container, by moving downwardly towards the base and within the neck finish, wherein said seal, to enable its downward movement, is selected from the group of a flexible material housing with an expandable side wall, a flexible material housing with an expandable side wall which has an accordion construction, and a flexible balloon structure which is able to expand within the neck finish."

None of the applied references taken singly or in combination teach or suggest the claimed combination, the recited elements quoted above, or moving downwardly towards the base and within the neck finish, wherein said seal, to enable its downward movement, is selected from the group of a flexible material housing with an expandable side wall, a flexible material housing with an expandable side wall which has an accordion construction, and a flexible balloon structure which is able to expand within the neck finish. *Boyd* is neither flexible or moves when the closure is sealed, and *Itzel* has no side wall that relieves pressure. Clearly claim 21 is patentable over the references.

Application No.: 10/598,544  
Amendment dated: September 8, 2009  
Second Reply to Office Action of: **June 16, 2009**  
Atty. Ref.: 010200-122

Reconsideration of the application and claims in view of the foregoing amendments and remarks is respectfully requested. Early notice of allowance thereof is earnestly solicited.

Please charge any additional fees that may be due or credit any overpayments to our deposit Account No. 50-0655. If a petition is required in conjunction with this paper, please consider this a request for such a petition.

Respectfully submitted,

Dated: September 8, 2009

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## APPENDIX A

# Concise Oxford Dictionary

*Tenth Edition*

*The foremost authority  
on current English*

*The  
world's  
favourite  
dictionary*

*The World's Most Trusted Dictionaries*

**con-** • prefix variant spelling of **com-** assimilated before *c, d, f, g, j, n, q, s, t, u* and sometimes before vowels (as in *concord, condescend, confide*, etc.).

**conacre** /'kɒneɪkə/ • **n.** (in Ireland) the letting by a tenant of small portions of land for crops or grazing.

— ORIGIN C19: from **CORN** + **ACRE**.

**con amore** /kɒn ə'mɔːreɪ/ • **adv.** Music with tenderness.

— ORIGIN Ital., 'with love'.

**conation** /kə'neɪʃ(ə)n/ • **n.** Philosophy & Psychology desire or will to perform an action; volition.

— DERIVATIVES **conative** **adj.**

— ORIGIN C17 (denoting an attempt or endeavour): from L. *conatio(n)*, from *conari* 'to try'.

**con brio** /kɒn 'brɪəʊ/ • **adv.** Music with vigour.

— ORIGIN from Ital.

**concatenate** /kən'kætɪnət/ • **v.** formal or technical link together in a chain or series.

— DERIVATIVES **concatenation** **n.**

— ORIGIN C15 (as **adj.**): from late L. *concatenat*, *concatenare* 'link together'.

**concave** /'kɒŋkəv/ • **adj.** having an outline or surface that curves inwards like the interior of a circle or sphere. Compare with **convex**.

— DERIVATIVES **concavely** **adv.** **concavity** **n.**

— ORIGIN ME: from L. *concavus*, from *con-* 'together' + *cavus* 'hollow'.

**conceal** • **v.** not allow to be seen; hide. > keep secret; prevent from being known.

— DERIVATIVES **concealment** **n.**

— ORIGIN ME: from OFr. *conceler*; from L. *concelare*, from *con-* 'completely' + *celare* 'hide'.

**concealer** • **n.** a flesh-toned cosmetic used to cover spots and blemishes.

**concede** • **v.** 1 finally admit or agree that something is true. > admit (defeat) in a match or contest. 2 surrender or yield (a possession, advantage, or right). > fail to prevent an opponent scoring (a goal or point).

— DERIVATIVES **conceder** **n.**

— ORIGIN C15: from Fr. *conceder* or L. *concedere*, from *con-* 'completely' + *cedere* 'yield'.

**conceit** • **n.** 1 excessive pride in oneself. 2 an elaborate metaphor or artistic effect. > a fanciful notion.

— ORIGIN ME: from **CONCEIVE**, on the pattern of *deceive, deceit*.

**conceited** • **adj.** excessively proud of oneself.

— DERIVATIVES **conceitedly** **adv.** **conceitedness** **n.**

**conceivable** • **adj.** capable of being imagined or understood.

— DERIVATIVES **conceivability** **n.** **conceivably** **adv.**

**conceive** • **v.** 1 become pregnant with (a child). 2 devise in the mind; imagine.

— ORIGIN ME: from OFr. *concevoir*, from L. *concipere*, from *con-* 'together' + *capere* 'take'.

**celebrate** /kən'selɪbreɪt/ • **v.** Christian Church officiate jointly at (a Mass).

— DERIVATIVES **celebrant** **n.** **celebration** **n.**

— ORIGIN C19: from L. *celebrat*, *celebrare* 'celebrate together'.

**concentrate** • **v.** 1 focus all one's attention or mental effort on. > (**concentrate on**) do (one particular thing) above all others. 2 gather together in numbers or a mass at one point. 3 increase the strength of (a solution). • **n.** a concentrated form of something, especially food.

— DERIVATIVES **concentrated** **adj.** **concentratedly** **adv.**

**concentrative** **adj.** **concentrator** **n.**

— ORIGIN C17 (in the sense 'bring towards a centre'): Latinized form of **CONCENTRE**, or from Fr. *concentrer* 'to concentrate'.

**concentration** • **n.** 1 the action or power of concentrating. 2 a close gathering of people or things. 3 the relative amount of a particular substance contained within a solution or mixture.

**concentration camp** • **n.** a camp for detaining political prisoners, especially in Nazi Germany.

**concentre** (US **concenter**) • **v.** concentrate in a small space. > collect at a common centre.

— ORIGIN C16: from Fr. *concenter*, from L. *con-* 'together' + *centrum* 'centre'.

**concentric** • **adj.** of or denoting circles, arcs, or other shapes which share the same centre.

— DERIVATIVES **concentrically** **adv.** **concentricity** **n.**

— ORIGIN ME: from OFr. *concentrique* or med. L. *concentricus*, from *con-* 'together' + *centrum* 'centre'.

**concept** • **n.** 1 an abstract idea. > an idea to help sell or publicize a commodity. 2 Philosophy an idea or mental picture of a group or class of objects, formed by combining all their aspects.

— ORIGIN C18: from L. *conceptum* 'something conceived', from L. *concept*, *concipere* (see **CONCEIVE**).

**concept album** • **n.** a rock album featuring songs expressing a particular theme.

**conception** • **n.** 1 the action of conceiving a child or of one being conceived. > the devising of a plan or idea. 2 the way in which something is perceived. > a concept. > ability to imagine or understand.

— DERIVATIVES **conceptual** **adj.**

— ORIGIN ME: via OFr. from L. *conceptio(n)*, from *concipere* (see **CONCEIVE**).

**conceptual** • **adj.** of, relating to, or based on mental concepts.

— DERIVATIVES **conceptually** **adv.**

**conceptualism** • **n.** Philosophy the theory that universals can be said to exist, but only as concepts in the mind.

— DERIVATIVES **conceptualist** **n.**

**conceptualize** (also **-ise**) • **v.** form a concept or idea of.

— DERIVATIVES **conceptualization** **n.**

**conceptus** /kən'septʌs/ • **n.** (pl. **conceptuses**) technical the embryo during the early stages of pregnancy.

— ORIGIN C18: from L., 'conception, embryo', from *concept*, *concipere* 'conceive'.

**concern** • **v.** 1 relate to; be about. > affect or involve. 2 worry (someone). • **n.** 1 worry; anxiety. 2 a matter of interest or importance. 3 a business. 4 informal, dated a complicated or awkward thing.

— PHRASES **as (or so) far as** — **is concerned** as regards the interests or case of — **have no concern with** have nothing to do with. **to whom it may concern** used to address a reader whose identity is unknown.

— ORIGIN ME: from Fr. *concerner* or late L. *concernere* (in med. L. 'be relevant to'), from *con-* (expressing intensive force) + *cernere* 'sift, discern'.

**concerned** • **adj.** worried; anxious.

— DERIVATIVES **concernedly** **adv.**

**concerning** • **prep.** about.

**concernment** • **n.** archaic importance. > a matter of interest or importance.

**concert** • **n.** /'kɒnsət/ 1 a musical performance given in public, typically of several compositions. 2 formal agreement; harmony. > law joint action, especially in committing a crime. • **v.** /kən'sɜ:t/ formal arrange by mutual agreement or coordination.

— PHRASES **in concert** 1 acting jointly. 2 giving a live public performance.

— ORIGIN C16: from Fr. *concert*; from Ital. *concertare* 'harmonize'; the noun is from Fr. *concert*.

**concertante** /kɒntʃə'tæntɪ, 'tanti/ • **adj.** 1 denoting a piece of music containing one or more solo parts, of less prominence than in a concerto. 2 chiefly historical denoting prominent instrumental parts throughout a piece of music.

— ORIGIN Ital., 'harmonizing'.

**concerted** • **adj.** 1 jointly arranged or carried out. > done with great effort. 2 (of music) arranged in several parts of equal importance.

**concert grand** • **n.** the largest size of grand piano, used for concerts.

**concertina** /kɒnsə'tɪnə/ • **n.** 1 a small musical instrument played by stretching and squeezing a central bellows between the hands to blow air over reeds, each note being sounded by a button. 2 [as modifier] opening or closing in multiple folds. • **v.** (**concertinas**, **concertinaed** or **concertina'd**, **concertinaing**) extend or compress in folds like those of a concertina.

**concertino** /kɒntʃə'tɪnəʊ/ • **n.** (pl. **-os**) 1 a simple or

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## APPENDIX B

# Chambers Dictionary of Science and Technology

*General Editor*  
John Lackie

**Chambers**

**computer generations (ICT)** Convenient means of expressing stages in the advance of digital computer technology. See FIRST-, SECOND-, THIRD-, FOURTH-, FIFTH-GENERATION COMPUTER.

**computer graphics (ICT)** The automatic handling of diagrams, pictures and drawings. The INTERACTIVE input and modification of drawings. See GRAPHICS TABLET, HIGH-RESOLUTION GRAPHICS, JOYSTICK, LIGHT PEN, MOUSE, PLOTTER, RASTER GRAPHICS, VECTOR GRAPHICS.

**computer language (ICT)** The primary symbolic means, comprising meaning, vocabulary and syntactical rules, by which logical instructions are given to a computer.

**computer-managed instruction (ICT)** Computer assistance to teachers for testing and keeping records.

**computer numerical control (ICT)** The control of a machine such as a lathe or milling machine by means of codes sent from the computer. Often these codes will have been generated automatically from the design produced by means of an integrated CAD/CAM system. See also G CODES.

**computer science (ICT)** The study, with the aid of computers, of computable processes and structures. It has many branches, eg ARTIFICIAL INTELLIGENCE, COMMUNICATIONS, COMPUTABILITY, COMPUTATIONAL COMPLEXITY, COMPUTER ARCHITECTURE, CYBERNETICS, DATABASE MANAGEMENT SYSTEMS, FORMAL LANGUAGE THEORY, INFORMATION RETRIEVAL, SOFTWARE ENGINEERING.

**computer system (ICT)** A linked system of PROCESSORS and INPUT/OUTPUT DEVICES with the SOFTWARE necessary to make them operate as a COMPUTER.

**computer-to-plate (Print)** The transfer of information from a PostScript file direct to printer's plate without the intermediate stage of either film or bromide C.R.C. Abbrev CTR.

**computer typesetting (Print)** The use of electronic equipment to process an unjustified input into an output of justified and hyphenated lines. The output can be a new tape, or disk to be used on a phototypesetting machine or it can be the final product in some filmsetting systems. Some equipment can accept a random input of items and produce a classified and alphabetically arranged output.

**computer vision (ICT)** The objective of giving computers the power to 'see' and to interpret what they 'see'.

**concanavalin A (BioSci)** A LECTIN that is derived from jack beans (*Canavalia ensiformis*) and that binds to oligosaccharides present in the membrane glycoproteins on many cells. The lectin has four binding sites and so can cause cross-linking of the glycoproteins. It is a very effective polyclonal mitogen for T-cells, causing them to secrete LYMPHOKINES. Abbrev ConA.

**concatenate (ICT)** To join together two STRINGS of characters.

**concave brick (Build)** A COMPASS BRICK.

**concave grating (Phys)** A diffraction grating ruled on the surface of a concave spherical mirror, made usually of specular metal or glass. Such a grating needs no lenses for collimating or focusing the light. Largely on this account it is the most useful means of producing spectra for precise measurement. See ROWLAND CIRCLE.

**concave lens (Phys)** A divergent lens.

**concave mirror (Phys)** A curved surface, usually a portion of a sphere, the inner surface of which is polished. It is capable of forming real and virtual images, their positions being given by the equation  $2/r = 1/l' + 1/l$ , where  $r$  is the radius of curvature of the surface,  $l$  the distance of the object and  $l'$  the distance of the image from the mirror (Cartesian CONVENTION OF SIGNS).

**CONCAWE (Genrl)** Abbrev for *Conservation Clean Air and Water in Europe*. An association of oil-refining companies operating in Europe that provides a service to international bodies, eg the European Commission, and publishes the results of environmental studies.

**conceal/reveal (ImageTech)** Visual transition effect in which one picture appears to slide across another.

**concentrate (MinExt)** The products of concentration operations in which a relatively high content of mineral has been obtained and which are ready for treatment by chemical methods.

**concentrated load (Build)** A load which is regarded as acting through a point.

**concentrates (Agri)** Processed animal feed containing high levels of nutrient in a limited bulk volume and used to promote growth and development.

**concentrating table (MinExt)** Supported deck, across or along which mineralized sands are washed or moved to produce differentiated products according to the gravitational response of particles of varying size and/or density. Stationary tables include strikes, sluices, buddles; moving tables include shaking tables (eg *Wilfley table*), vanners and rockers.

**concentration (Chem)** (1) The number of molecules or ions of a substance in a given volume, generally expressed as moles per cubic metre or cubic decimetre. (2) The process by which the concentration of a substance is increased, eg the evaporation of the solvent from a solution.

**concentration (Eng)** Production of CONCENTRATE.

**concentration cell (Phys)** A cell with similar electrodes in common electrolyte, the emf arising from differences in concentration at the electrodes.

**concentration plant (MinExt)** *Cleaning plant, concentrator mill, reduction works, washing.* Buildings and installations in which ore is processed by physical, chemical and/or electrical methods to retain its valuable constituents and discard as tailings those of no commercial interest. See MINERAL PROCESSING.

**concentration polarization (Phys)** A form of polarization occurring in an electrolytic cell, due to changes in the concentration of the electrolyte surrounding the electrode.

**concentrator (ICT)** In the context of NETWORKS, a device that channels data from a number of users on to a smaller number of higher-capacity links.

**concentric (ICT)** A term replaced by COAXIAL.

**concentric arch (Arch)** An arch laid in several courses whose curves have a common centre.

**concentric chuck (Eng)** See SELF-CENTRING CHUCK.

**concentric plug-and-socket (ElecEng)** A type of plug-and-socket connection in which one contact is a central pin and the other is a ring concentric with it.

**concentric vascular bundle (BioSci)** A bundle in which a strand of xylem is completely surrounded by a sheath of phloem (amphicribal) or vice versa (amphivasal).

**concentric winding (ElecEng)** An armature winding, used on ac machines, in which groups of concentric coils are used. Also used to denote the type of winding, used on transformers, in which the high-voltage winding is arranged concentrically with the low-voltage winding.

**concentric wiring (ElecEng)** An interior wiring system in which the conductor consists of an insulated central core surrounded by a flexible metal sheath which forms the return lead.

**conceptacle (BioSci)** A flask-shaped cavity in a thallus, opening to the outside by a small pore, and containing reproductive structures, eg in *Fucus*.

**conception (Med)** The fertilization of an ovum with a spermatozoon.

**concertina fold (Print)** A method of folding a leaflet or insert so that it opens out and closes in a zigzag fashion. US *accordion fold*.

**concert pitch (Acous)** The recognized pitch, ie frequency of the generated sound wave, to which musical instruments are tuned, so that they can play together. The exact value has varied considerably during musical history, but it has recently been internationally standardized so that A (above middle C) becomes 440 Hz. Allowance must be made for the rise in temperature experienced in concert halls, which alters the pitch in ways peculiar to the different types of instrument.

**concha (Arch)** The smooth concave surface of a vault.